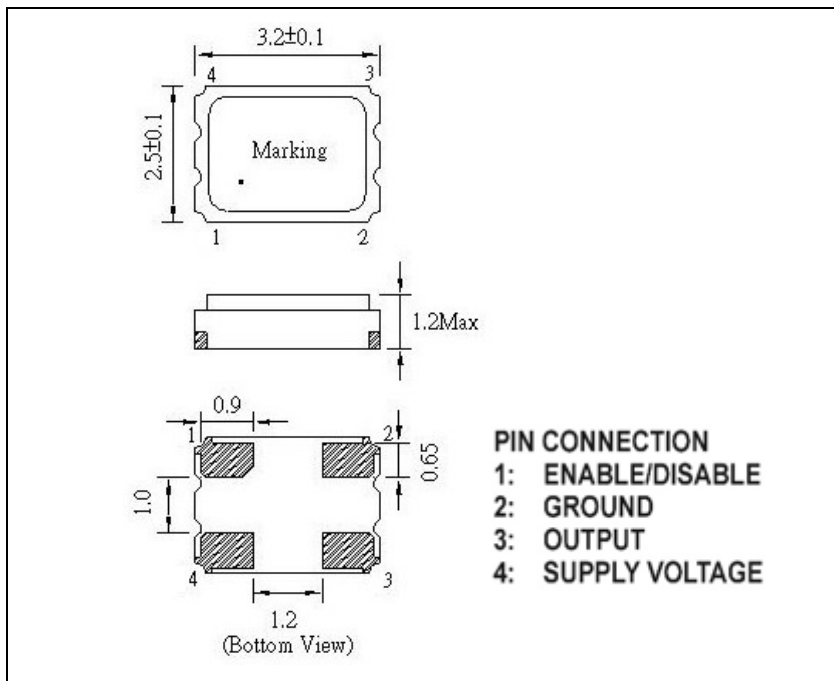


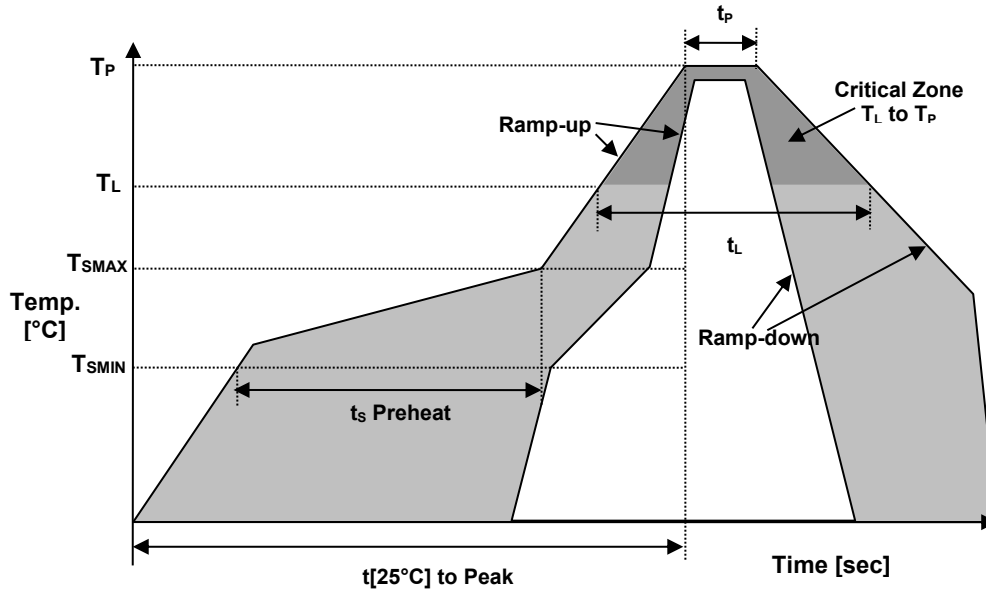
#### ELECTRICAL SPECIFICATION

| PARAMETER                   | SYMBOL         | CONDITIONS   | VALUE                             | UNIT               |
|-----------------------------|----------------|--|-----------------------------------|--------------------|
| Nominal Frequency           | $f_o$          | $T_a=25^{\circ}\text{C}$   | 48.000                            | MHz                |
| Supply Voltage Range        | $V_{CC}$       | ---  | 3.3                               | VDC                |
| Operating Temperature Range | $T_a$          | ---  | -20 ~ +70                         | $^{\circ}\text{C}$ |
| Storage Temperature Range   | $T_{(stg)}$    | Absolute max   | -55 ~ +125                        | $^{\circ}\text{C}$ |
| Frequency Tolerance         | $\Delta f/f_o$ | Inclusive of $25^{\circ}\text{C}$ Tolerance and Changes due to Operating Temperature, Supply Voltage, Load, Aging, Shock and Vibration | $\pm 25$                          | ppm                |
| Output Voltage              | $V_{OL}$       | Logic "0" Level  | $0.1 \times V_{CC}$               | VDC                |
|                             | $V_{OH}$       | Logic "1" Level  | $0.9 \times V_{CC}$               | VDC                |
| Output Load                 | ---            | CMOS Output  | 15                                | pF                 |
| Supply Current, max         | $I_s$          |  | 40                                | mA                 |
| Enable / Disable Function   | E/D            | Pin 1: N.C. (Open) or High   | Pin 3 – Oscillation (Enabled)     |                    |
|                             |                | Pin 1: Low   | Pin 3 – High Impedance (Disabled) |                    |
| Symmetry (Duty Cycle)       | DC             | @50% Vdd   | 45 to 55                          | %                  |
| Rise Time and Fall Time     | $t_r / t_f$    |  | 10                                | ns                 |

#### MECHANICAL SPECIFICATION



### REFLOW PROFILE



| Reflow profile                              |                                    |              |
|---|------------------------------------|--------------|
| Temperature Min Preheat                     | $T_{SMIN}$                         | 150°C        |
| Temperature Max Preheat                     | $T_{SMAX}$                         | 200°C        |
| Time ( $T_{SMIN}$ to $T_{SMAX}$ )           | $t_s$                              | 60-180 sec.  |
| Temperature                                 | $T_L$                              | 217°C        |
| Peak Temperature                            | $T_P$                              | 260°C        |
| Ramp-up rate                                | $R_{UP}$                           | 3°C/sec max. |
| Ramp-down rate                              | $R_{DOWN}$                         | 6°C/sec max. |
| Time within 5°C of Peak Temperature         | $t_p$                              | 10 sec.      |
| Time $t_{[25^\circ C]}$ to Peak Temperature | $t_{[25^\circ C] \text{ to Peak}}$ | 480 sec.     |
| Time  | $t_L$                              | 60-150 sec.  |

### ENVIRONMENTAL

| PARAMETER                  | VALUE     |
|----------------------------|-----------|
| MOISTURE SENSITIVITY LEVEL | 1         |
| RoHS                       | COMPLIANT |
| REACH-SVHC                 | COMPLIANT |
| HALOGEN-FREE               | COMPLIANT |
| TERMINATION FINISH         | Au        |



#### MARKING

Rx48.0  
•3AEyw

x – Internal Production ID code  
y – Year code  
w – Week code

| YEAR CODE |      |
|-----------|------|
| Year      | Code |
| 2011      | 1    |
| 2012      | 2    |
| 2013      | 3    |
| 2014      | 4    |
| 2015      | 5    |
| 2016      | 6    |
| 2017      | 7    |
| 2018      | 8    |
| 2019      | 9    |

| ALPHA WEEK CODE TABLE |      |      |      |      |      |
|-----------------------|------|------|------|------|------|
| Week                  | Code | Week | Code | Week | Code |
| 1                     | a    | 19   | s    | 37   | K    |
| 2                     | b    | 20   | t    | 38   | L    |
| 3                     | c    | 21   | u    | 39   | M    |
| 4                     | d    | 22   | v    | 40   | N    |
| 5                     | e    | 23   | w    | 41   | O    |
| 6                     | f    | 24   | x    | 42   | P    |
| 7                     | g    | 25   | y    | 43   | Q    |
| 8                     | h    | 26   | z    | 44   | R    |
| 9                     | i    | 27   | A    | 45   | S    |
| 10                    | j    | 28   | B    | 46   | T    |
| 11                    | k    | 29   | C    | 47   | U    |
| 12                    | l    | 30   | D    | 48   | V    |
| 13                    | m    | 31   | E    | 49   | W    |
| 14                    | n    | 32   | F    | 50   | X    |
| 15                    | o    | 33   | G    | 51   | Y    |
| 16                    | p    | 34   | H    | 52   | Z    |
| 17                    | q    | 35   | I    |      |      |
| 18                    | r    | 36   | J    |      |      |

#### APPROVAL

| RALTRON      |                      |
|--------------|----------------------|
| DRAWN BY:    | AR, January 28, 2019 |
| APPROVED BY: | CP, January 28, 2019 |
| REVISION:    | A, Initial Release   |